CLAIMS

1. A genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide and/or a homologue or derivative or analogue thereof, wherein said poxvirus vector does not productively infect said subject.

2. A genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide and/or a homologue or derivative or analogue thereof, and a sequence of nucleotides encoding an immunostimulatory polypeptide, wherein said poxvirus vector does not productively infect said subject.

3. The genetic vaccine construct of claim 1 or 2, wherein the prostate specific polypeptide is a prostatic acid phosphatase and/or a homologue, derivative or analogue thereof.

4. The genetic vaccine construct of claim 1, 2 or 3, wherein the homologue is a xenogeneic homologue.

5. The genetic vaccine construct of to any one of claims 1 to 4, wherein the subject is a human subject.

6. The genetic vaccine construct of claim 4 or 5, wherein the xenogeneic homologue is rodent prostatic acid phosphatase.

7. The genetic vaccine construct of claim 6, wherein the rodent prostatic acid phosphatase is rat prostatic acid phosphatase.

8. The genetic vaccine construct of claim 2, wherein the immunostimulatory polypeptide is a cytokine.

9. The genetic vaccine construct of claim 8, wherein the cytokine is one or more of

IL-2, IL-12, TNFα, IFNγ, IL-6, IL-4, IL-7 or GM-CSF.

10. The genetic vaccine construct of claim 9, wherein the cytokine is one or more of IL-2, IFNγ or IL-12.

11. The genetic vaccine construct of claim 10, wherein the cytokine is IL-2.

12. The genetic vaccine construct of any one of claims 1 to 11, wherein the poxvirus vector is a fowlpox virus vector.

13. A composition comprising the genetic vaccine construct according to any one of claims 1 to 12.

14. A composition consisting essentially of the genetic vaccine construct according to any one of claims 1 to 12.

15. The composition of claim 13 or 14, wherein expression products of said genetic vaccine construct stimulate a prostate cell specific immune response.

16. The composition of claim 15, wherein prostate cell specific immune response is a PAP specific immune response.

17. The composition of claim 15 or 16, wherein the expression products of the genetic vaccine construct stimulate autoimmune prostatitis.

18. A recombinant vector for use in making the genetic vaccine construct according to any one of claims 1 to 12 comprising:

i) poxviral vector nucleic acid sequences comprising sites for homologous recombination with a poxvirus vector;

ii) one or more promoters; and

iii) a sequence of nucleotides encoding a prostate specific polypeptide.

19. A recombinant vector for use in making the genetic vaccine construct according to any one of claims 2 to 12 comprising:

i) poxviral vector nucleic acid sequences comprising sites for homologous recombination with a poxvirus vector;

ii) one or more promoters;

iii) a sequence of nucleotides encoding a prostate specific polypeptide; and

iv) a sequence of nucleotides encoding an immunostimulatory polypeptide.

20. A eukaryotic cell infected with a genetic vaccine construct according to any one of claims 1 to 12.

21. An antibody capable of acting as a marker for the genetic vaccine construct which antibody recognises epitopes uniquely formed in expression products of the genetic vaccine construct according to any one of claims 1 to 12.

22. A nucleic acid probe comprising a complementary form of a contiguous sequence of nucleotides of all or part of the genetic vaccine construct according to any one of claims 1 to 12 which specifically recognises said genetic vaccine construct under appropriate hybridisation conditions.

23. A method for stimulating or otherwise enhancing a prostate cell specific immune response in a subject comprising administration to the subject of an effective amount of a composition comprising a genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide and/or a homologue or derivative or analogue thereof, for a time and under conditions sufficient for expression products of said genetic vaccine construct to stimulate or otherwise enhance a prostate cell specific immune response, and wherein said poxvirus vector does not productively infect said subject.

24. A method for stimulating or otherwise enhancing a prostate cell specific immune response in a subject comprising administration to said subject of an effective amount of a composition comprising a genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject,

expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide and/or a homologue or derivative or analogue thereof and a sequence of nucleotides encoding an immunostimultory polypeptide, for a time and under conditions sufficient for expression products of said genetic vaccine construct to stimulate or otherwise enhance a prostate cell specific immune response, and wherein said poxvirus vector does not productively infect said subject and a sequence of nucleotides encoding an immunostimulatory polypeptide.

25. A method for immunotherapy and/or immunoprophylaxis of prostate cancer comprising administration of an effective amount of a composition comprising a genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide and/or a homologue or derivative or analogue thereof, wherein said poxvirus vector does not productively infect said subject, and wherein expression products of said poxvirus vector stimulate a prostate cell specific immune response effective in the treatment and/or prophylaxis of prostate cancer.

26. A method for immunotherapy and/or immunoprophylaxis of prostate cancer comprising administration of an effective amount of a composition comprising a genetic vaccine construct comprising a poxvirus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a prostate specific polypeptide or a homologue or derivative or analogue thereof, and a sequence of nucleotides encoding an immunostimulatory polypeptide, wherein said poxvirus vector does not productively infect said subject, and wherein expression products of said poxvirus vector stimulate a prostate cell specific immune response effective in the treatment and/or prophylaxis of prostate cancer.

27. The method of any one of claims 23 to 26, wherein the prostate specific polypeptide is a prostatic acid phosphatase and/or a homologue, derivative or

analogue thereof and the prostate cell specific immune response is a PAP specific response.

28. The method of any one of claims 23 to 27, wherein the homologue is a xenogeneic homologue.

29. The method of any one of claims 23 to 28, wherein the subject is a human.

30. The method claim 28 or 29, wherein the xenogeneic homologue is rodent prostatic acid phosphatase.

31. The method of claim 30, wherein the rodent prostatic acid phosphatase is rat prostatic acid phosphatase.

32. The method of claim 24 or 26, wherein the immunostimulatory polypeptide is a cytokine.

33. The method of claim 31, wherein the cytokine is one or more of cytokines IL-2, IL-12, TNFα, IFNγ, IL-6, IL-4, IL-7 or GM-CSF.

34. The method of claim 33, wherein the cytokine is one or more of cytokines IL-2, IFNγ and/or IL-12.

35. The method of claim 34, wherein the cytokine is IL-2.

36. The method of any one of claims 23 to 35, wherein the poxvirus vector is a fowlpox virus vector.

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